Space Weather Forecast

Issued on Monday 10 February 2025 at 13:14 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate flares. Chance of Minor Geomagnetic storms (G1).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with one Moderate-class flare from the sunspot on the northwest disc. This region is becoming more difficult to assess as it rotates over the northwest limb, but continues to give a chance of flaring. There are a total of seven region currently on the disc, with the other regions largely small and simple. The main exception is the new region in the southeast, although this is also difficult to assess due to its proximity to the southeast limb.

No Earth directed Coronal Mass Ejections (CMEs) were observed from available imagery.

Solar Wind / Geomagnetic Activity: Solar winds showed the onset of a faster solar winds from a coronal hole. Background solar winds were initially 400km/s before steadily increasing to reach elevated, 550-600 km/s, by 09/1800 UTC. Interplanetary Magnetic Field was initially Strong, before easing to be Weak from 10/0030 UTC. North-south component was turbulent and initially Moderate to Strong, but favouring a southward orientation. This eased to be weak from 10/0030 UTC. Geomagnetic activity was Unsettled to Active (Kp3-4), with two G1/Minor Storms intervals observed (09/1800-2100 UTC and 10/0000-0300 UTC), although these were initially reported as Active intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background throughout with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate activity is likely with isolated Moderate-class flares and a very slight chance of Strong-class flares.

Solar Wind / Geomagnetic Activity: There is a slight chance of two glancing CMEs during Days 1 or 2 (10-11 Feb). Otherwise ongoing fast solar winds are expected, with a further coronal hole sourced enhancement likely days 3-4 (12-13 Feb). Quiet to Active geomagnetic activity is forecast with G1 Minor Storms likely and a slight chance G2 Moderate Storm from any CME arrival Day 1-2 (10-11 Feb), and an ongoing chance of G1 Minor Storms day 3-4 (12-13 Feb).

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background throughout with no Solar Radiation Storms occurring.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	70	50	50	50
Strong	G3	No	1	5	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	60	60	60	60
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	5
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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